# Journal of the Royal Society of Arts

NO. 4937 FRIDAY, 29TH OCTOBER, 1954 VOL. CII

## *FORTHCOMING MEETINGS*

WEDNESDAY, 3RD NOVEMBER, at 2.30 p.m. INAUGURAL ADDRESS. '*Looking Ahead*', by E. Munro Runtz, F.R.I.C.S., Chairman of the Council. After the Address medals will be presented by the Chairman, and tea will be served in the Library at the conclusion of the proceedings.

WEDNESDAY, 10TH NOVEMBER, at 2.30 p.m. '*The Place of the Film in the Age of Television*', by Roger Manvell, Ph.D., Director, British Film Academy. Sir Stephen Tallents, K.C.M.G., C.B., C.B.E., a Member of Council of the Society, will preside.

WEDNESDAY, 17TH NOVEMBER, at 2.30 p.m. E. FRANKLAND ARMSTRONG MEMORIAL LECTURE. '*Science and Food Production*', by Leslie H. Lampitt, D.Sc., F.R.I.C., a Director and Chief Chemist of Messrs. J. Lyons & Co., Ltd. Sir Charles Dodds, M.V.O., M.D., F.R.C.P., F.R.S., Courtauld Professor of Biochemistry, University of London at Middlesex Hospital Medical School, will preside.

WEDNESDAY, 24TH NOVEMBER, at 2.30 p.m. '*A Scheme for House-top Roadways*', by Wing Commander T. R. Cave-Browne-Cave, C.B.E., F.R.Ae.S., M.I.Mech.E., and '*A System of Underground Roadways for London*', by C. E. H. Watson, B.Sc., M.I.C.E., A.M.I.Mech.E. *These two papers were submitted as entries for the Society's Bicentenary Competition 'Life in the Year* A.D. 2000', *and gained respectively the first two prizes which were awarded, viz.,* £50 *and* £20.

*Fellows are entitled to attend any of the above meetings without tickets and may also bring two guests. When they cannot accompany their guests, Fellows may give them special passes, books of which can be obtained on application to the Secretary.*

## *CHANGES IN THE PROGRAMME*

Fellows are asked to note the following changes which have become necessary since the programme for the coming Session was circulated with the last issue of the *Journal*:

WEDNESDAY, 24TH NOVEMBER, at 2.30 p.m. The two winning entries submitted

for the Society's Bicentenary Competition will, as stated above, be read in substitution for the paper on '*The Chalon Portrait*', which will now be read on 26th January.

WEDNESDAY, 19TH JANUARY, at 2.30 p.m. CADMAN MEMORIAL LECTURE. '*Research in the Coal Industry*', by W. Idris Jones, C.B.E., B.Sc., Ph.D., Director-General of Research, National Coal Board. This lecture was originally planned for 26th January.

WEDNESDAY, 26TH JANUARY, at 2.30 p.m. '*The Chalon Portrait*', by Robson Lowe.

## *PRESENTATION OF R.D.I. DIPLOMAS AND BICENTENARY MEDAL*

A special meeting was held at the Society's House on Monday, 25th October, for the presentation of the R.D.I. Diplomas and the Bicentenary Medal which were awarded in June. The three presentations were made by Lord Radnor, in the absence through illness of Mr. Munro Runtz, the Chairman of the Council, to Mr. William Lyons, Mr. Pinin Farina and Sir Colin Anderson respectively. They were followed by an address read by Sir Francis Meynell, Master of the Faculty, entitled '*The Seeing Eye*'.

The meeting, of which a full report will be published in the *Journal* on 26th November, was attended by a large number of Fellows and their guests and Members of the Faculty, and was preceded by a small sherry party in the Library, which was given by the Faculty.

## *RESULTS OF THE BICENTENARY COMPETITION*

The judging of the entries received for the Bicentenary Competition has now been completed and, on the advice of the judges, the Council has made the following awards:

A prize of £50 to Wing Commander T. R. Cave-Browne-Cave, C.B.E., M.I.Mech.E., F.R.Ae.S., of Southampton: for a scheme for house-top roadways.

A prize of £20 to C. E. H. Watson, B.Sc. (N.Z.), M.I.C.E., A.M.I.Mech.E., A.M.I.Struct.E., of Walton-on-Thames: for a system of underground roadways for London.

A prize of £10 to F. R. East, A.C.I.S., of Horbury, near Wakefield: for a paper on synthetic food.

A prize of £10 to the Rev. C. W. Gibbons, B.Sc., of Cambridge: for a paper on education.

A prize of £10 to M. B. McEvedy, M.A., B.M., B.Ch. D.Obst., R.C.O.G., D.M.R.T., of Manchester: for a paper on microbiological products.

The Council greatly regretted that the judges were unable to recommend any entry for either the first prize of £250 or the second prize of £100. Also, a number

of essays, some of them of considerable merit, had to be disqualified for transgression of the rules, some being greatly in excess of the limit of 3,000 words and others, instead of dealing with a single aspect of life, ranging over a variety of subjects.

The essays submitted by Wing Commander Cave-Browne-Cave and Mr. C. E. H. Watson will be read and discussed as papers on Wednesday, 24th November, as announced above, when the prizes will also be presented.

## *RESULTS OF THE OFFER OF ENDOWED PRIZES*

The Royal Society of Arts, in accordance with the terms of certain of its Trusts, this year offered three Prizes of £20 each under the terms set out below. The result of these offers is now announced as follows:

1. *Fothergill Prize for Fire Prevention or Fire Fighting*

A prize of £20 was offered for an essay or model embodying some new idea for the prevention or suppression of fire.

Six entries were submitted, and on the recommendation of the judge appointed by the Council, Mr. S. H. Clarke, M.Sc., Director of the Fire Research Station, D.S.I.R., the prize has been divided as follows:

£10 to Mr. H. G. Bayliss, of Weymouth: for his essay on the inculcation of fire-consciousness in children.

£5 to Mr. P. M. Pucill, of Chiswick: for a description of a warning device for the prevention of crankcase explosions in motor ships, and

£5 to Mr. A. R. Broomfield, of Northampton: for a scheme for connecting a sprinkler alarm system direct to a fire station.

It is hoped to publish Mr. Bayliss's essay in a later issue of the *Journal*.

2. *Benjamin Shaw Prize for Industrial Safety*

A prize of £20 was offered for any idea or invention which would diminish the risk of industrial accidents.

Only one essay was submitted for this prize and no award was made.

3. *Howard Prize for Mechanical Motive Power*

A prize of £20 was offered for a treatise on some aspect of the subject of mechanical motive power.

No entries were received for this prize.

## *MEETING OF COUNCIL*

A meeting of Council was held on Monday, 11th October, 1954. Present: Mr. E. Munro Runtz (in the Chair); Mr. F. H. Andrews; Sir Alfred Bossom; Sir Frank Brown; Mr. Robin Darwin; Mr. P. A. Le Neve Foster; Mr. John Gloag; Sir Ernest Goodale; Mr. A. C. Hartley; Dr. R. W. Holland; Mr. William Johnstone; Lord Latham; Sir Harry Lindsay; Mr. F. A. Mercer; Mr. J. A. Milne; Sir William Ogg; Mr. E. M. Rich; Mr. A. R. N. Roberts; Sir Andrew

Rowell; Sir Harold Saunders; Sir Selwyn Selwyn-Clarke; Sir John Simonsen; Professor L. Dudley Stamp; Mr. William Will; Sir Griffith Williams, and Mr. J. G. Wilson; with Mr. K. W. Luckhurst (Secretary) and Mr. R. V. C. Cleveland-Stevens (Assistant Secretary).

ELECTIONS

The following candidates were duly elected Fellows of the Society:

Ahmed, Khawaja Mumtaz, B.A., Lahore, Pakistan.
Bakes, Noel, Sutton-on-Hull, Yorks.
Bennett, Charles Wesley, Armagh, Northern Ireland.
Bhawalkar, D. R., M.Sc., Ph.D., Saugar, India.
Bossom, Doric, B.A., London.
Bowland, Gordon, Baghdad, Iraq.
Bristowe, Caryl Beddy, Northam, Transvaal, South Africa.
Brown, Francis Pearce, London.
Brown, Robert James, Cheltenham, Glos.
Carroll, Peter Joseph, M.E., A.M.I.C.E., Dublin, Eire.
Collins, Leslie Harold Howard, Heston, Middx.
Coomber, Ronald Robert, B.Sc., F.C.A., Bushey Heath, Herts.
Cowell, Miss Eva Margaret, A.R.C.A., London.
Crisford, John Northcote, Buckhurst Hill, Essex.
Crossley, Joseph Richard Doull, Nottingham.
Crouch, Joseph Henry Edward, E.D., London.
Cruden, Stewart Hunter, A.R.I.B.A., F.S.A.(Scot.)Edinburgh.
Dalton, Professor George Clifford James, B.Sc., B.E., Ph.D., Auckland, New Zealand.
Davies, Rowland, M.A., Hartlebury, Worcs.
Dawtry, Frank Dalmeny, London.
Draper, John Michael Burns, M.A., LL.B., London.
Dumpleton, John Le Fèvre, St. Albans, Herts.
Duncan, Daniel Karotkin, London.
Eddy, Paul Dawson, A.M., B.D., LL.D., New York, U.S.A.
Evans, Derek Edward, Hereford.
Fancutt, Frank, F.R.I.C., Alvaston, Derby.
Fooks, Alfred Charles Lindsay, B.E., A.M.I.C.E., Taupo, New Zealand.
Ford, Peter James, Gloucester.
Frank, Miss Violet Ivy, London.
Gibbs, Peter Bawtree, Bulawayo, Southern Rhodesia.
Goodlet, Brian Laidlaw, O.B.E., M.A., M.I.C.E., Harwell, Berks.
Gwilym, Clifford, A.R.I.B.A., Chester, Cheshire.
Harley, Sidney Lawrence, Birmingham.
Hicken, Philip Burnham, Newton, Massachusetts, U.S.A.
Hockey, Ronald Clifford, D.S.O., D.F.C., Beckford, Glos.
Hocking, Miss Elizabeth Denison, B.A., London.
Hodson, Eric Alfred, Birmingham.
Hyman, Edgar, London.
Ingham, Ernest, Barnet, Herts.
Jaques, John Leslie, Salford, Lancs.
Jenkin, Thomas Hugh, A.R.C.A., Stewart Island, New Zealand.
Johnson, Major W. L., Beaconsfield, Bucks.
Kellogg, Charles Wetmore, S.M., Queen Anne, Maryland, U.S.A.
Kessell, James Everett, Coventry, Warwicks.
King, Robert Tregunna, London.
Lagesse, j. René, B.Sc., Curepipe, Mauritius.

Lee, Herbert Christopher, Wickham, Hants.
Lord, Thomas, A.M.I.Mech.E., Barrow-in-Furness, Lancs.
Lowe, William Lawson, Birmingham.
Lury, Dennis Albert, B.Sc., Tripoli, Libya, North Africa.
Martin, Bruce, A.R.I.B.A., Much Hadham, Herts.
Murphy, John Edward, Mitcham, Surrey.
Neary, Michael Joseph, London.
Nixon, Harry, Pinner, Middx.
O'Shea, James Francis Bernard, M.C., London.
Phipps, Ernest Lionel, Barnet, Herts.
Pickford, William Lewis, London.
Richharia, R. H., M.Sc., Ph.D., Sabour, Bihar, India.
Scoones, General Sir Geoffry Allen Percival, K.C.B., K.B.E., C.S.I., D.S.O., M.C., Wellington, New Zealand.
Shah, Shashikant Laxmidas, M.Com., Fort, Bombay, India.
Sinclair, Alastair Brown, Castle Douglas, Kirkcudbrightshire.
Smith, Frank Walker, C.B.E., J.P., Redditch, Worcs.
Spencer, George Hooton, J.P., Rugby, Warwicks.
Sumner, Frederick, Sturminster Newton, Dorset.
Taylor, Donnald Minshall, B.A., Wembley, Middx.
Trefry, Ellery Perry, Halifax, Nova Scotia, Canada.
Wait, Peter Esmond, Gloucester.
Walden, Leslie Tristan Graham, London.
Waley-Cohen, Bernard Nathaniel, M.A., London.
Warner, William P., Chesterfield, Derbys.
Williams, William Sidney Gwynn, O.B.E., Llangollen, North Wales.

The following, who was awarded a Silver Medal in the Society's examinations, was duly elected an Associate Member of the Society:

Gawthorpe, Miss Sylvia Gladys, King's Lynn, Norfolk.

SPECIAL ACTIVITIES COMMITTEE

The appointment of Mr. A. R. N. Roberts as Chairman of the Special Activities Committee was confirmed.

RESIGNATION

It was reported that Sir John Woodhead had unfortunately found it necessary to resign his membership of the Council. Lord Nathan was elected to fill the vacancy thus created.

EXHIBITION OF MEDALS AND COINS

Approval was given to the holding, with the assistance of the Royal Numismatic Society and the Fédération Internationale des Editeurs de Médailles, of an Exhibition of Medals and Coins in the Society's Library in the early summer of 1955.

SOCIETY'S INVESTMENTS

The Treasurers reported that, with the assistance of Sir Andrew Rowell, a Vice-President of the Society, they had completed the overhaul of the Society's investments which they had been invited at the July meeting to undertake during the summer.

OTHER BUSINESS

A quantity of financial and other business was transacted.

# THE FOREST RESOURCES OF THE COLONIAL TERRITORIES AND THEIR MANAGEMENT

*A paper by*

*F. S. COLLIER, C.B.E.,*

*Forestry Adviser to the Secretary of State for the Colonies, read to the Commonwealth Section of the Society, on Thursday, 6th May, 1954, with H. R. Blanford, C.B.E., I.F.S. (retd.) late Chief Conservator of Forests, Burma, in the Chair*

THE CHAIRMAN: I have great pleasure in introducing Mr. Collier, who will give the lecture to-day on 'The Forest Resources of the Colonial Territories'. Mr. Collier joined the Colonial Forest Service in Nigeria in 1922 and served in Nigeria until 1951, when he came home as Forest Adviser for the Colonial Secretary. I am sure we have great pleasure in welcoming Mr. Collier to speak to us.

*The following paper, which was illustrated with lantern slides, was then read:*

## THE PAPER

I think I should preface this paper with the statement that the term Colonial Territories conveniently covers those whose affairs are still guided through the Colonial Office. The forest resources of these individual Colonial Territories are theirs to do with as they wish; whatever the stage of their development, the goal which is aimed at is the achievement of self-contained land utilization in each territory. It would not be reasonable, for example, that a tropical country should allocate all its high forest land to forestry because the Commonwealth needs tropical timber, if that country could make far more profitable use of its forest land for cocoa crops; each Colony must achieve its own balance of forest, agricultural and pasture land. The basis of British administration has always been this individual development.

It is first necessary to define forest resources. These are not confined to forests supplying timber and its derived products. Admittedly that is their commonest and most profitable use, but thorn scrub in a dry country like Somaliland can be of as much importance to the people as the heavy timber in the evergreen forests of West Africa is to the people of West Africa. Forest resources include timber, firewood, charcoal, poles for house building, fibre for rope, wild fruits and leaves to eat, browsing for stock, woodland pastures, honey and beeswax. The true forest resources of a country are those which can be made permanent. In developing countries the forests are not all permanent;

the first demand upon them is for agricultural land. It is a stage which is passed through by all countries—in the distant past by Great Britain, which was largely a forest country once, in the fairly recent past by Canada and Australia, and at the present time by nearly all the countries of tropical Africa. It is progress, an inevitable adjustment of land use, so long as the forests are replaced by sound agriculture. The agriculture of very primitive peoples is often, however, not settled but 'shifting' cultivation; it implies entry upon forest land with no thought of permanent occupation: the forest is felled, brushwood heaped in piles round the bigger trees, which are too large to fell, and all is burnt, not only to clear the ground but to enrich the soil with ash. A crop is grown, followed perhaps by a second crop in the subsequent year, and then the cultivator moves on to a fresh patch of forest and does not return.

The process which is now making such inroads upon the forests of the tropics is very different, although outwardly similar. It is known as the bush fallow system of agriculture. The farmer again fells the forest, stacks the brushwood round the big trees and burns all, but he makes a village and intends to remain in the locality. He plants his crops for one or more years and then takes in hand a new plot, leaving the first to begin the recovery of its fertility under the regrowth of natural brushwood. If it takes ten years to restore fertility he makes ten annual plots which he farms in rotation, circulating round his central village. The system is a sound one and maintains the fertility of the soil, though it is a very extravagant form of land utilization in comparison with any farming system which makes use of manure, or a short herbaceous fallow. But it is a system for which no effective alternative has yet been found in the tropics and it is adequate so long as the population does not increase beyond the level which the system can support. The value of this fallow of woody plants, of course, lies in the mineral nutrients brought up from below by their deep roots to replace the surface supplies exhausted by the shallow rooted crops. On lands already taken up for bush fallow agriculture, or earmarked for its future expansion, forestry must be a secondary consideration. All that can be done is to make the utmost profit from such lands by utilizing the timber, firewood and other products as fully as possible before the forest is cleared by the farmers. These are ephemeral supplies, 'salvage', not true forest resources.

But no country can be economically balanced without its permanent supplies of forest produce; to do forestry one must have forests. A portion of the country's land must be set aside for the purpose. Few of the Colonial Office territories have failed at least to initiate this task, unpopular since the days of William the Conqueror, of establishing a forest estate, legally secure in perpetuity and demarcated on the ground. There is in general a set pattern covering the procedure for this establishment, founded originally on the practice of the Indian Forest Service, a service which was one of the really great achievements of British tutorial administration overseas. The initial step is that of reconnaissance. The countryside is examined in detail by forest officers, and likely areas of forest or woodland are chosen and their boundaries described. They are chosen primarily because the reservation to forestry will not clash unduly

with the activities of the people living round about. The preliminary proposal for a forest reserve, as this is often called, may include large areas of farmland, and villages, for it is nothing more than a convenient description of the area *within* which the forest reserve will eventually be constituted. This intention to constitute and a description of the land are published in the Government Gazette and made known verbally in the villages. Provision is made for an officer, usually an administrative officer, to be appointed as the reserve Settlement officer or commissioner, and a date is fixed before or on which he must be made aware of claims to rights or privileges within the area described, or of objections to its constitution as a forest. In theory, these claims should be submitted neatly and clearly on paper to the Settlement Court. In practice, amongst illiterate peasantry, the settlement officer has usually to ferret out claims himself and guide the claimants on their submission. It is the duty of the reserve settlement officer, the political officers of the neighbourhood and the forest officer concerned to bring to the notice of the Settlement Court all claims of which they can find evidence. There must be no humbug about it or taking advantage of the ignorance or apathy of the villagers.

Large villages, with their crop and fallow lands, must obviously be excised. The farm and fallow lands and the villages, then, are scheduled for exclusion from the proposed forest area, and provisional boundary lines, to give effect to this, are cut by the forest officer in the presence of the villagers. The preliminary proposal is thus reduced to something which is more truly forest than it was originally—although it must be kept clearly in mind that the term forest covers the whole range of vegetation, from heavy timber to open scrub and wild grazing land, according to the type of country. It remains to decide the rights which do not call for excision of land, rights the exercise of which is compatible with the practice of forestry. These include rights to hunt, to fish, to collect dead wood, rights of way, rights to water cattle and so on, and they may be of very great importance to the people. Even the right to collect tortoises and snails for food is often insisted upon. Hunting is not a sport for forest villagers, but a means of livelihood to men, armed with the Dane gun, a long muzzle loading flint lock, with bows and arrows, traps and spears or blowpipes, who make hunting their regular employment. To deprive them of this without good reason would be not only wrong but virtually impossible in large areas which could not be adequately patrolled. River and pool fishing, also, are not holiday occupations, but the harvesting of a food supply which is of immense importance to the countryside. The details and limits of a right must of course be carefully examined and described, lest it is abused in the future. The interests of the country as a whole cannot be neglected; the protection of the forest has to be considered. It is quite obvious, even to primitive communities, that no *right* can exist for a few persons to damage the property of the whole community, and care must be taken when traditional rights are first reduced to paper, and legal language, that this safeguard is recorded, for paper soon becomes an awkward master.

The whole future of the forest depends upon an equitable, accurate and

detailed 'settlement'. All boundaries referred to in it have, of course, to be marked by cairns of stone, cement pillars, blazed trees or a trace cut along the ground—a very necessary operation, for illiterate peasants could never understand a complicated boundary description, involving compass bearings and distances, unless it were clearly cut and marked as a line on the ground. When the appeals are disposed of, amendments made, boundaries confirmed and finally marked, a notice is published in the Gazette, legally constituting the area as a permanent forest under the Forestry Ordinance, subject to the terms of settlement. The State usually limits its control to the right of ensuring effective management of the forest on the most up-to-date forestry principles and in the best interest of the community; rights of ownership are rarely, nowadays, acquired or otherwise interfered with.

So much for the method of making permanent the sources of supply of forest produce. There must follow provision for their protection under the law by the constant patrol of forest guards, foresters and rangers. In addition to this constant patrolling and safeguarding of the forest against damage and encroachment, there have to be considered its suitable utilization and, even more important, its regeneration—that is the constant maintenance of an adequate growing stock. These will be discussed later in this paper.

I propose next to give a brief account of the nature of the forest resources of the various Colonial Territories, dividing these for convenience into regions, first the Caribbean region, that is the West Indies and, on the American mainland, British Guiana and British Honduras; then South East Asia, Malaya, North Borneo, Sarawak and Fiji, and thirdly, West Africa, with Nigeria, the Gold Coast, Sierra Leone and the Gambia. In this region I would prefer to include Uganda, geographically part of East Africa, but associated more closely with West Africa by its vegetation and fauna. Lastly there is the East and Central African region, with the Somaliland Protectorate, Kenya, Tanganyika, Nyasaland and Northern Rhodesia. The tally is not exhaustive but covers the main territories.

The Caribbean region is largely one of islands, and a glance at a map astonishes most people by its revelation of the great distances which separate many of them. The prime timber of this region is Honduras mahogany, the original mahogany, of the genus *Swietenia*. British Honduras has been a supplier of timber to Great Britain since its earliest years, first of logwood, and then when the logwood trade was killed by chemical dyes, of mahogany. The mahogany has, however, been seriously over-felled through the years; supplies have become precarious, and there must be a period of shortage while the growing stock is being built up again. British Honduras, like the Caribbean region generally, is heavy forest country, but there are savannahs, poor grasslands, in the low country and intruding upon the foothills. These support good stands of Caribbean Pine, a valuable indigenous pitch pine almost identical with the Slash Pine of Florida. The same pine is found in considerable woods on the Bahama Islands of Grand Bahama, Great Abaco, Andros and New Providence. Tests are now in progress as to the possibility of tapping the Caribbean Pine. Approximately two tons of

resin have been collected in British Honduras, and this is being examined in Great Britain for the production of turpentine and rosin—'naval stores' as these products are called.

Second only in popular reputation to Honduras mahogany is greenheart from British Guiana, a hard timber, clean, straight and durable. It is used extensively for dock work, and is resistant to the ship-worm or teredo. Although the evergreen forests of British Guiana are extensive and contain large greenheart stocks, they are not by any means inexhaustible; they cannot be mishandled or the damage must cause considerable loss to the country's economy. The danger of this is realized and steps are being taken to avoid it. The Caribbean islands are to a large extent self-contained in the matter of timber and firewood. Indeed they have to be, by reason of the distances which separate them and which must be covered by schooner.

To pass next to the other side of the world, to South East Asia. Fiji only requires the comment that its Forest Department is now on the way to securing the control which is essential if its forests are to be preserved. Malaya, North Borneo and Sarawak are countries with a climate generally moist throughout the year, and they are covered from one end to the other, practically speaking, except where there is cultivation, with closed high forest of tropical evergreen type. One family of trees, the Dipterocarps, with many genera, dominates the growing stock and the utilization and regeneration of the type are well understood. Indeed, the management of the Malayan forests has become classical. In Sarawak there is probably excessive concentration of sawmills in one part of the country, the Rejang delta, but this is fully realized and will be remedied as soon as opportunity offers. The industry has elements in common with both Malaya and North Borneo and the most sought after timber is the swamp species Ramin (*Gonystylus* sp.). North Borneo is so sparsely populated that it depends entirely for the prosperity of its forest industry upon the maintenance of export markets. The difficulties of extraction demand considerable capital investment, and utilization is in the hands of large and competent European firms, using heavy machinery and, in one case, elephants as well. In the Federation of Malaya the Chinese, business men of great acumen and sound knowledge and labourers of untiring industry, are the factor which decides the pattern of the forest industry. The large modern firm has not found a footing and the small Chinese sawmill unit is the rule. There is a very substantial export surplus after the heavy local demand is satisfied.

From South East Asia I turn to the West Coast of Africa. The West Coast had its reputation as 'the white man's grave' and is, even to-day, popularly believed to be nothing but steamy evergreen forest. This is very far from being the fact; the closed evergreen high forests of Africa are extremely limited in extent, limited in fact to a coastal fringe, rarely more than two hundred miles deep, along the West Coast of Africa, and to an extensive equatorial block. Africa as a whole is not a green forest country, but one of dry woodlands and scrub, the scattered trees twisted and distorted by the fires which sweep through the six foot high grass every dry season. This type of country is aptly called by the

layman 'orchard bush', and by the professional, 'savannah woodland', and there are many hundreds of thousands of square miles of it in Africa, stretching away like a derelict English orchard. The conversion of this orchard bush to profit is one of the outstanding forestry problems of Africa, and one to which a solution has not yet been found.

But there are high forests in West Africa, too green and dense to be entered by fire, with the biggest trees 24 feet in girth and over two hundred feet high. The Sapele (*Entandrophragma*) and African (*Khaya*) mahoganies from this region have replaced the dwindling supplies of Honduras mahogany, and the white 'soft hardwood' Obechi, pronounced Obekki, (*Triplochiton*) is in tremendous demand. The forests, however, are not virgin and under the heaviest timber can be seen the protective earth works of vanished towns. Until quite recently only the finest trees were taken for export timber, the logs were carefully squared, and extracted by hand hauling and floating. Modern machinery has changed all this; crawler tractors, winches and lorry-units, taking a load of twenty tons, make it possible to utilize the forest more fully. It is worth mentioning that in the Benin forests of Nigeria work is continued far into the night by the light of powerful lamps to take full advantage of the dry season. Tractors and vehicles can then be laid up in the heavy rains rather than wear themselves out floundering in the deep mud.

The natural evergreen forests of East and Central Africa are almost confined to the highland and mountain regions, where they are maintained by the cloud and mist which pass high over the dry lowlands; their most useful timbers are the Pencil Cedar (*Juniperis procera*), Podo (*Podocarpus spp*), and on the wetter slopes the so-called Camphor, of the same genus, *Ocotea*, as the Greenheart of South America. The chief interest of this East African region, however, lies not in the mountain forest or in the vast dry scrub areas, but in the large-scale plantations, still being extended, of exotic conifers, mostly pines and cypress. All these plantations are in the limited highland areas with an almost temperate climate, where these introduced species make phenomenal growth. It is worth recording that last year the Kenya Forest Department fulfilled its annual planting programme of 6,500 acres, mainly in Kikuyu country and with Kikuyu labour, a notable achievement.

Northern Rhodesia supplies large quantities of timber, poles and firewood to its copper mines from the savannah woodland which covers so much of the country. It is one of the few examples of such woodland being turned to commercial use.

As against these conifer plantations in Africa the natural pine forests of Cyprus in the Mediterranean must be mentioned, consisting of the indigenous Aleppo Pine and, at higher elevations, the Corsican Pine. Much damage has been done to them in the past by thoughtless felling and fire, and even more by the goats which used to browse uncontrolled on the steepest slopes, nibbling roots, seedlings and indeed everything they could reach, and keeping the screes in constant movement by their clambering. These animals have completely prevented regeneration in the recent past and were on the way to ruining the forests,

when the Forest Department by determined effort and very tactful handling succeeded in evicting them. The pine forests are responding magnificently to their new freedom from browsing and are rapidly being rehabilitated.

It is appropriate here to make the point that a sense of proportion must be kept in considering questions of forest grazing, and that each case must be judged on its merits. In Cyprus the goats were destroying valuable national property; but in Somaliland, for example, the nomadic goats, browsing on the acacia thorn, are harvesting otherwise useless woodland by turning it into milk, skins and meat.

One can hardly complete a survey of this sort without a brief reference to the possibility of afforesting the Sahara, a subject which turns up from time to time like a bad penny. The Sahara is a very ancient natural desert which has expanded and contracted with major changes in world climate. It was occupied in comparatively recent days, because it afforded the only access to the fertile lands south of the desert, now Northern Nigeria and the adjoining countries. The only ports of those days were the North African ports along the Mediterranean coast. The opening up of the seaports of the West African Coast, and of the roads and railways which now tap the interior, have completely reversed the flow of trade from its former northward direction to the Mediterranean and it now flows south to the West Coast seaports. The occupation of the Sahara has ceased: it has no longer to be crossed and it has become economically derelict. This is due not to any change in climate or destruction of vegetation but to economic causes alone. Conditions on the edge of the desert have always been difficult, but there is no evidence at all of other than purely local advances and retreats. The desert itself is a formidable waste, and I cannot even imagine that its afforestation would be practical politics.

I end this paper with a very brief account of the fundamentals of forest management. Every Colonial Territory of any size has a forest department in its government and, of course, a forestry ordinance—the forest law. The officer staff of these departments consists of professionally qualified men, usually with a degree in Forestry obtained at one of the following British universities: Aberdeen, Bangor, Edinburgh or Oxford, and, at one time, Cambridge. Up to the present these officers have been almost entirely British and recruited by the Colonial Office as members of a unified Colonial Forest Service. With the increasing progress of individual territories towards autonomy, however, there is a marked desire on the part of each to staff its department with its own local men. The unified Colonial Service is faced with the probability of fragmentation before it has even reached maturity. Individual departments, nevertheless, will be held together by a common professional code and technique, guarded and constantly refreshed by the quinquennial British Commonwealth Forestry Conferences.

The functions of a forest department are the protection and management of the forest estate, and the overriding difficulty in forest management is that an annual yield is required from produce which may take a hundred years to grow. The forest is not a unit which reaches maturity, is felled and finished with, but

a plant community maintaining its vigour and productivity for ever, like its human counterpart, a town. The self-contained forest must, therefore, contain a complete series of age gradations in its growing stock, from the seedling stage up to mature timber, in such balance and proportion that annual yields can be harvested in constant succession. There are two main types of self-contained forest: the first that in which the individual trees of each age gradation, or age class, are distributed throughout the forest in complete mixture with individuals of all other age classes—such a forest is a 'selection forest'. On the other hand, individual trees of each particular age-class in a forest may be so concentrated that each class occupies its own particular area of the forest to the exclusion of all others, and the forest is a series of blocks each made up of trees at the same stage of growth. Such a forest is known as a 'uniform' or 'compartment' forest. The selection system of forest management is probably the highest form of the forester's art, but, as in other walks of life, the best is too often the enemy of the good, and one can aim too high. The dangers of the selection system in incompetent hands are great, and not the less so because deterioration is often imperceptible in its early stages. In mixed tropical forest, an overpowering proportion of the growing trees is useless for timber or other products, so far as is at present known. Under a selection system the annual cut must be made up of trees individually chosen, and this too often picks the plums out of a forest, or 'creams' it, leaving it almost entirely at the mercy of the useless trees left unfelled. These 'weed trees' smother the young growth of useful species. The uniform system, on the other hand, is crude and inartistic perhaps, but simple and effective. The distribution and area occupied by each age class are clear and the volume of timber to be felled each year is also a matter of acreage. The various operations, whether of tending or felling, are concentrated and, therefore, easy to control and thrifty. Under this system at its simplest, if the timber crop takes a hundred years to reach maturity, the forest area is divided into a hundred equal parts, one of which is felled each year. The felling takes place *after* careful cutting of climbers and the killing of weed trees has given opportunity to a full crop of healthy saplings to cover the ground, with enough to spare to allow for loss by felling damage.

Malaya is the leading Colonial Territory in the management of tropical forests, and it employs a uniform system with control of yield by area annually felled and operations to foster the young growth from natural seeding. The Western Region of Nigeria handles very large areas most successfully under a variant of the same system, and Trinidad also has some excellent uniform management to show, although it is naturally on a small scale. In the matter of a selection type of management Cyprus and Uganda must be mentioned as the examples. Plantations, from the intensive nature of their creation, fall naturally into a uniform system and require no further comment.

The earliest form of forest control in a new country is usually hardly a system, but a simple prohibition of the felling of trees below a certain size. It is assumed, for example, that when a tree of a certain species reaches ten feet in girth it is mature and may be felled; the danger of this is exposed by a diagrammatic

example. Assume that there is a forest composed entirely of a hundred mahogany trees, the first a seedling of one year old, the second two years old, the third three years old, and so on up to the hundredth tree which is a hundred years old and ten feet in girth. In a forest of this structure, to prohibit the felling of any tree of less than ten feet in girth will maintain its structure and productivity in perpetuity, so long as the oldest tree *is* felled and replaced each year. If, however, this diagrammatic forest is left untouched for a hundred years, the oldest tree in the forest will have reached two hundred years of age and perhaps fifteen feet in girth and the youngest tree will be a hundred years old and ten feet in girth. If then the same ten-foot minimum felling girth is imposed here, it cannot prevent the forest being felled clean in a year, and a hundred must pass before another tree will grow to felling size. Not a few tropical countries have found themselves in some situation of this sort, by trusting to an arbitrary girth limit rather than to a sound system of forest management.

As a final point, I offer the warning that there must be two parties to forest management, the forester growing the trees and rationing the cut, and the timber man utilizing the forest, producing revenue and making place for new crops. Unless these two work together in honest harmony there can be no long-term forestry.

## DISCUSSION

SIR SELWYN SELWYN-CLARKE, K.B.E., C.M.G. (Chairman, Commonwealth Committee): The lecturer's reference to shifting cultivation recalls to my mind two pictures. One of them is of Malaya some twenty odd years ago where the Saki—who are, as you know, the indigenous tribes—live right out in the jungle, and they had the habit described by Mr. Collier of cutting down enough trees for them to plant their manioc, doing this usually on such steep contours that the first heavy rains carried down all the top soil and many rocks and destroyed the forest below. The second picture is of the Gold Coast. I am happy to say we have here to-day Lady Moore-Guggisberg, under whose husband I had the pleasure many years ago of serving there. I was present at a Legislative Council meeting when he was endeavouring to sell the idea of the need for forest reserves. Our Conservator of Forests and others felt there was a danger of the Sahara moving southwards and that everything ought to be done to preserve our forests, partly for that reason and partly in order to conserve the water supply. Sir Gordon Guggisberg mentioned how important trees were in relation to water supplies. One after another the chiefs rose, took off their Kente cloths and put them under their arms, bowed to Sir Gordon and said that they had recently come home to the Gold Coast from the Peace March, of 1919, and they had been on a ship many, many miles from land and it had rained so badly they had had to keep to their cabins. They did not quite appreciate his argument in favour of the forest reserves because there was rain on the sea and yet there were no trees in the sea!

That reminds me, too, that the last Colony in which I served had a tree which was endemic to that part of the world. It was called by the local inhabitants Coco-de-mer, because the large fruit—I believe it is the biggest fruit in the world and grows to a weight of something like sixty pounds—used to fall into the sea and the currents carried it to the Malabar Coast of India. There it was picked up and the Indians said, 'There's no tree like this in the Indian Continent and its fruit comes

from the sea; there must be some big tree growing under the sea producing this large fruit'; hence Coco-de-mer.

Another point that interested me in Mr. Collier's speech was his reference to the right to collect dead wood. I am sorry to say some of our West Africans used to have a habit of ringing the living trees in the forest reserves. Of course, if you take the bark off all round the tree it produces dead wood in the course of time and it can then be cut down and taken away for firewood.

One question I should like to ask is, what is the Colonial Office doing to train foresters and forest officers, and what is it doing to emphasize the importance of forests to our colonial economy.

THE LECTURER: The Colonial Office is not taking any direct steps in the recruitment of local forest officers; that is left to the Colonies themselves, individually. The Gold Coast has got two Africans at the moment, I think. Nigeria has seven Africans who are actually working as forest officers, and working very satisfactorily. They had a shortened training, and did not go through the full degree course; this had an unfortunate effect in that other Africans who are not qualified in field work, as these men were, do not see why they, also, should not be made forest officers, without a degree. They do not realize that these Nigerians were exceptions, specially chosen pioneers.

LADY MOORE-GUGGISBERG: I would like to ask Mr. Collier why he did not mention Odum. That was a wonderful wood we had in the Gold Coast.

THE LECTURER: I did not mention Odum because I had rather to concentrate my paper to get it into the time. Odum, Iroko as it is called in other parts of the world, is a very valuable timber indeed, but it is almost exclusively used *within* West Africa. Most territories object to its export because they put such a high value on it themselves. It is the equivalent of the oak in Europe.

MR. C. E. SIMMONS, I.F.S. (RETD.): Might I ask the position about training subordinate staff in the Colonies? Does a Colony run a school for foresters and forest guards? How are the subordinate services manned? Are they trained or just local men put into a uniform and given a certain amount of instruction? Are there forest schools?

THE LECTURER: There are forest schools, but the forest guards, the lowest grade, generally start as untrained men.

MR. C. E. SIMMONS: We had the same thing in India until we started forest guard schools, but the difficulty is to get lecturers to teach in them; how is that arranged?

THE LECTURER: Very often it is not. Usually forest guards are taught in the field, but the higher grades, the technical grades, of forest assistant and ranger are taught in schools. However, as Mr. Simmons says, the difficulty is that of finding teaching staff. The efficient man who knows his job may be too unsympathetic with the students. The man who can handle the students may not know his work. It is extremely difficult to find a really good teacher. A great many Colonies have a school, not at the forest guard level but at a higher level, the ranger level.

PROFESSOR E. P. STEBBING: The lecturer alluded to the new Forest Service and to what the Indian Forest Service had left behind in India. That service was started by the Secretary of State for India way back in the 'sixties, and every year a certain number of appointments for probations were notified in the press and they were recruited by the Secretary of State all through the long life of that Service. Now we have just heard that the Secretary of State for the Colonies is not going to take any

steps under the new conditions. Surely one cannot imagine that the forests of the Colonies if left to the new political policy can possibly progress without fully-trained foresters. As a matter of fact one would think that for a number of years each Colony would require a nucleus at least of fully-trained British forest officers.

THE LECTURER: Many Colonies recognize the necessity for fully-trained and British officers for a long time, and in actual fact the Colonies have the last word. The Colonial Office recruits on behalf of the individual Colony, but since, say, the Gold Coast employs the man he is recruited on behalf of the Gold Coast. If the Colonial Office thought he was not adequate, they could draw the Gold Coast's attention to the fact but could do no more. It is one of the things one may deplore, but can do nothing about.

PROFESSOR STEBBING: There must be a great deal of difference between the power of the Secretary of State for the Colonies and that of the Secretary of State for India over the years, because the Secretary of State for India certainly had full powers.

THE LECTURER: I imagine the Colonial Secretary had considerable powers in the past, but I think those powers are severely restricted by the tendency towards autonomy in the Colonial Territories.

THE CHAIRMAN: First of all I should like to thank Mr. Collier on your behalf very much indeed for a most interesting lecture with some most interesting and beautiful slides. Then there is something I should like to say about this question of changing autonomy. One has got to realize that British foresters have no very great prospects in the future of a prolonged employment in the Colonies. We know what has happened in Burma and India. There the old I.F.S. has disappeared, and I am afraid the same is bound to happen within not too long a period in most of the Colonies. In India and Burma, as Professor Stebbing has told you, the Department started about 1860, so that it had eighty to ninety years of work directed by foresters from this country. Incidentally the British nation is notoriously lacking in a forest tradition, and if it has any tradition at all to-day I think it is due to the Indian Forest Service and their long stay in the Indian Empire. The Colonies did not start forestry till a good bit later and few of them have had much more than thirty to forty years of organized forestry. So they have not had quite the advantages that India and Burma had in building up not only a tradition of forestry among the people of the country but also a tradition of forest employment and forest training. Their task is even more difficult than it was in India where we did leave behind a considerable tradition of forestry and where the forestry work is continuing very satisfactorily. I would suggest that one of the most important tasks the Colonial Forest Service has to do in the possibly short time remaining for them in the Colonies is to build up a tradition of forestry in the Governments and people. It is not easy and I think they have made good progress. I can only wish them success in the short time they have left.

With those remarks I should like to thank Mr. Collier very much indeed for his interesting talk.

*The vote of thanks was carried with acclamation; and, another having been accorded to the Chairman, the meeting ended.*

# TECHNICAL EDUCATION IN NEW SOUTH WALES

*A paper specially contributed by*

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The contribution of this paper was rendered feasible by the kind and valued co-operation of the Honourable R. J. Heffron, M.L.A., Minister of Education, and also at the time Acting Premier, of New South Wales. He arranged for officers in his department who had access to official files and documents to collaborate in the preparation of the paper with the result that a continuous historical record was compiled which might not otherwise have been possible. I gratefully acknowledge the co-operation and collaboration of, and tender my thanks to, all those who engaged on the work.

The provision of technical training for workers at all vocational levels is now recognized as one of the most important responsibilities of the New South Wales State Government. It is interesting, however, to note that the present highly developed system had its origin in the pioneering efforts of a small non-government body, the Sydney Mechanics Institute. Formed in 1833 to aid 'the diffusion of scientific and other useful knowledge as extensively as possible throughout the colony' the Institute by 1865 was acquiring technical equipment and conducting classes at public halls and school buildings in Sydney. As the colony grew and its industries became established, the Government saw a need to place technical education on a more systematic basis. A Technical Education Board was placed in charge of courses in 1883, and in 1889 the Department of Public Instruction became responsible for instruction.

The twentieth century saw a well-defined Technical Education Branch conducting vocational courses in twelve different fields. The Sydney Technical College had been erected at Ultimo in 1892, and other colleges were functioning at seven suburban and country centres. Classes were also being held in public school buildings at 34 other towns. In 1901 total enrolments for the state were 12,267 and the staff numbered 133. The re-organization of 1914 introduced the principle of liaison with industry. A number of advisory committees were established to give representatives from the various manufacturing and retail bodies an opportunity to criticize and shape the forms of training which their workers were obtaining. As the new century progressed, technical education continued to develop. The Australian economic scene showed a definite shift in emphasis from primary to secondary industry. Factories were multiplied, new processes adopted, and great firms such as Broken Hill Propriety, Colonial

Sugar Refining Co., Ltd., and Australian Consolidated Industries began to exert a powerful influence on the economic and political scenes. There was a need for more and more trained workers at all levels, not only in the manufacturing industries, but also in primary industries, where increased use of machinery was seen as a great step toward maximum production.

It was the Second World War, however, which really spotlighted technical education as a matter of national concern. The allied leaders recognized that modern warfare was becoming more and more a struggle of technologies. Sheer manpower mattered less, technical knowledge and productive efficiency mattered more. During the war years an attempt was made to remedy the shortage of skilled tradesmen both in the war industries and within the forces themselves. The Commonwealth Government, in consultation with technical education authorities from all states, set up short intensive training courses for tradesmen.

The total number of personnel who received oral training under the Defence Training scheme was over 37,000 and for correspondence courses about 100,000. The scheme was hailed as a vital part of the Australian war effort. It made the nation 'technical education' conscious. Governments began to vote more funds for technical education, firms sponsored their more promising workers giving them free instruction and the man in the street also saw the need for systematizing his vocational training. This renewed interest was apparent when peace finally ushered in a new but no less strenuous task for those who had co-ordinated defence training—the Commonwealth Reconstruction Training Scheme.

Essentially the purpose of the scheme was to provide pre-discharge and post-discharge training for servicemen and women who because of their enlistment lacked the qualifications necessary for a satisfactory adjustment to civilian life. Once again the stream of trainees passing through the technical colleges was enormous and taxed the capacity of the Technical Education Branch to the full. During five years of intensive training more than 50,000 ex-servicemen and women undertook training in New South Wales and a good percentage found congenial and profitable jobs in the community.

It was probably a direct result of post-war interest in technical education that since 1946 there has been considerable widening of the scope of instruction and a universal raising of standards in courses available. Many new courses have been commenced to meet specialized demands of new or expanding industries and each year many existing courses are revised so that they will keep in step with the ever-changing industrial scene.

The year 1949 must take its place as a milestone with the passing of the Technical Education and New South Wales University of Technology Act. This Act established a State Department of Technical Education with direct responsibility to the Minister for Education, thus entirely separating its administrative control from those of elementary and secondary education. It also incorporated the New South Wales University of Technology which was to teach the application of science and the technologies at the highest academic level and 'aid by research and other suitable means the advancement, development, and practical application of science to industry and commerce'.

## ORGANIZATION OF INSTRUCTION

The primary function of technical education might be stated simply as the supplementary training of the artisan, technician and professional worker. Necessarily, instruction is divided among a number of schools and within each of these schools courses of varying standard and emphasis are provided according to the particular needs of students. Although courses in different fields are not really comparable in content they do bear a similarity in structure, entrance requirements and duration. The divisions are as follows: (*a*) trade courses, for the training of the skilled craftsman; (*b*) certificate or technical courses for the training of the most highly skilled craftsmen and semi-professional worker; (*c*) diploma courses for the training of the professional worker; and (*d*) special courses and pre-vocational courses.

### *Courses for craftsmen and technicians*

Traditionally the apprentice learns his trade through direct experience in the job. However, most trades and crafts have developed so far that few employers could provide the facilities and equipment to train their apprentices in all aspects of the trade. The trade courses are not meant to be comprehensive and self-sufficient in content but merely to supplement the worker's day-to-day experience. In fact no one is eligible for training who is not already employed in the trade concerned. Instruction is given in theory, calculations and drawing and in workshop practice. Thus the apprentice is encouraged to bring understanding and accuracy to his work. With a firm basic knowledge he is also equipped to meet new techniques as they appear in his vocation. College workshops also provide the apprentice with an opportunity to see and operate machinery with which he would seldom come in contact if his practical training were restricted to experience in the factory.

An important impetus was given to trade training with the introduction in 1944 of day-time training for apprentices in a number of trade courses. Following an amendment to the Industrial Arbitration Act 1943, these apprentices were permitted to attend classes for eight hours a fortnight during the employer's time. The remaining four hours a fortnight were for evening classes in the apprentice's own time. Trade courses are available in such subjects as carpentry, brick-laying, fitting and machining, printing, and plumbing, as well as in most of the other skilled trades from bakers to tanning.

### *Diploma courses*

Although courses for craftsmen and technicians loom large in any study of technical education, the highly mechanized nature of modern life also produces a need for technologists whose training is advanced to a much higher level. Of such are the engineers, chemists, accountants, executives, and other leaders of industry. Diploma courses offer professional training in many subjects which are also taught at universities. Like traditional university degree courses they aim at imparting a firm basis of scientific principles which the student can employ in

his professional work. Unlike most university courses, however, they are oriented to emphasize the application of scientific principles to technology. Furthermore, instruction in most courses is part-time and supplements the student's practical experience.

At present, diploma courses are offered in a number of the engineering professions, in sciences such as chemistry, physics, food technology and those which apply the principles of human relations and efficient production, such as applied psychology and management, and in such arts as commercial illustration, painting, and modelling and sculpture.

*Certificate courses*

These are a number of special-purpose courses whose standards of instruction lie between those set for trade and diploma courses. In general the certificate course student, who must have passed the Intermediate Certificate examination, is a skilled technical or semi-professional worker in a field not covered by an apprenticeship award.

The accountancy certificate course trains students for the examination of the Australian Society of Accountants. There are courses in agriculture and gardening for those in charge of municipal parks and gardens. Textile workers may take courses in the specialized processes of yarn and fabric manufacture and dyeing, and the women's handicrafts course prepares girls for professional careers in dressmaking, millinery, ladies' tailoring and similar subjects.

*Special and pre-vocational courses*

Many persons seek intensive training in short, specialized courses such as millinery, welding, or motor maintenance, which are not covered in the longer trade or certificate courses. Again the variety of such instruction is wide and includes practically any subject for which a sufficient demand exists.

Preparatory courses are provided by the School of General Studies for the benefit of those who have left school without the necessary educational standard to profit from advanced academic training, and who have not qualified for matriculation. Through these courses young people may actually sit for the Intermediate and Leaving Certificate Examinations which are normally taken after three and five years' secondary schooling by pupils aged between 15 and 17.

## NEW FIELDS IN TECHNICAL EDUCATION

Mention has been made of the expanding scope of technical education. As Australian industry adopts new processes and improved techniques, requiring specialist operators and craftsmen, the technical college must keep pace with the advances and play a prominent part in devising systematic courses of study in the new field.

*Psychology and management*

Problems of human relationships and organization loom large in modern industry. A number of courses are available which enable supervisors and

executives to approach these problems with a mind trained to appreciate the principles of economics and politics as they apply to industrial management, as well as the basic human values which are essential to harmony in industry.

In the Applied Psychology Diploma course, training covers the construction and uses of psychological tests, counselling techniques, and the traditional and social bases of industrial psychology. The courses in management and public administration are designed to give junior executives and trainees in industry and the public service an appreciation of the principles underlying managerial practice. The whole field of managerial thought is surveyed from its origin in the elements of economics and psychology to its practical influence on business policy and operations.

Applied courses at the certificate level have also been commenced in personnel practices, foremanship and supervision, retail management and personnel management, and many lectures in these and similar subjects are given on the premises of factories and business houses.

*Food courses*

As a large-scale food producer, Australia is vitally concerned in the scientific study of food processing and preparation and in the most hygienic methods of controlling food production operations. The Department's teaching on these subjects falls into two main categories: first, long-term handling of food for preservation and storage and for export to world markets—the many scientific principles involved here are taught in the diploma of food technology; secondly, there is the short-term handling of food, the preparation and cooking of fresh food for early consumption.

In this field the most advanced course is the Science Diploma in Food and Nutrition which was commenced in 1949 and is still in the development stage. Although it centres on the home and family it also provides scientific training for workers in food and nutrition research and teaching and for advisers and demonstrators in large food firms, retail stores and electricity supply and gas undertakings.

In developing its trade courses the Food School at East Sydney has co-operated steadily with the hotel and catering trades and with the meat, bakery, confectionery and allied industries. In these courses food and bakery science are taught and the student is instructed in those elements of chemistry and physics affecting his trade. A modern kitchen is being installed and students will be given every facility to acquaint themselves practically with the main items of mechanical equipment.

*Rural courses*

Together with an increasing use of machinery in secondary industry there has been an increasing trend towards mechanization in rural industries. This has probably been necessitated by the steady drift of labour away from the country and towards the increased opportunities for employment in the cities. In agriculture and horticulture courses and in the teaching of farm mechanics the

Department of Technical Education has made considerable progress during the past decade. Comprehensive courses are conducted in agriculture, gardening and horticulture and short term training can be obtained in many special subjects from pig raising and poultry farming to landscape garden design. An interesting development of the past few years has been the founding of a School of Horticulture at Ryde near Sydney. The School occupies an area of 25 acres and has been planned to include a large landscape garden with such features as lakes, pools, greenhouses etc., a complete commercial nursery, a special purpose turf area, botanical section, an orchard and other sections for floriculture and commercial vegetable growing.

Training in rural subjects at country colleges is usually biased according to the particular pattern of local industry. Emphasis is given to dairy technology on the north and south coasts of New South Wales, to coal-mining at Newcastle, Maitland, Lithgow and Wollongong, and to sheep and wool in the many wool areas of the State. In fact for over fifty years the teaching of sheep and wool subjects has been prominent in the curriculum of technical education in New South Wales. To-day there are sixty centres at which instruction is given in wool classing and allied subjects and, of these, thirty are small outlying towns serviced by itinerant teachers. Throughout the state over one thousand students are being trained each year.

At the tertiary level a degree course in wool technology has been in progress since 1951 at the New South Wales University of Technology. This course aims at training research workers, valuers, managers and other professional workers in the pastoral industry. Graduates will have both the scientific background and the most up-to-date practical experience to enable them to take a prominent place in the wool industry.

Side by side with this expansion of sheep and wool courses, the Department of Technical Education has established a Textiles School, which will be closely linked with the all-important wool industry. Valuable textile machinery and equipment of the most modern kind have been obtained from overseas and eventually the school will offer thorough training in all phases of the industry. As planned, instruction will cover the washing and scouring of wool and the processes in making of yarns. From the yarn stage, students will learn how to weave a whole variety of materials and articles. A course in textile dyeing which has been in operation for several years has been reorganized. A testing and research laboratory will also be added and should make the school a valuable asset to the Australian textile industry.

*Fine arts*

The Art School at East Sydney is one of the largest schools of fine and applied arts in the world. The school's great value as a cultural asset is well established, but in addition its influence is being felt more and more on art and design in industry. Students of the design and crafts, interior decoration, painting, and commercial art courses are finding much scope for new ideas in the textile, printing, furnishing and other trades.

The following table shows the number of enrolments for the Department, including defence and reconstruction and correspondence students but excluding degree students, during the years 1942 to 1952:

| | | | |
|---|---|---|---|
| 1942 | 39,054 | 1948 | 61,911 |
| 1943 | 34,737 | 1949 | 64,951 |
| 1944 | 39,804 | 1950 | 65,205 |
| 1945 | 42,917 | 1951 | 67,760 |
| 1946 | 51,255 | 1952 | 70,464 |
| 1947 | 59,227 | | |

## ADMINISTRATIVE ORGANIZATION OF THE DEPARTMENT

### *Liaison with industry*

A cardinal feature of the New South Wales technical education system is its close co-operation with industry and the general community and the vast amount of voluntary help it receives from all sections of industrial life. At the base of the system each technical course or group of courses is under the surveillance of an advisory committee whose membership includes representatives from both employer and employee interests. These committees assist the school by making recommendations on the preparation and revision of syllabuses. In many cases expert sub-committees are constituted to investigate special or highly technical problems and furnish reports to the major committees.

At metropolitan and country centres where colleges are established district committees of prominent citizens assist the Department's local representative by suggesting appropriate courses of instruction and by stimulating local interest in the courses provided. In the more heavily industrialized areas where larger technical colleges are operating, district councils have been appointed to advise the Minister for Education on the provision of technical education facilities in their districts.

Although these various advisory bodies carry out their functions satisfactorily, there is a need for a central body charged with the co-ordination of the work of the advisory committees to place each in its proper perspective and to develop an overall survey of the State's industrial needs. This central body is known as the Technical Education Advisory Council. Its membership covers the widest possible representation from the main primary and secondary industries of New South Wales, leading cultural, scientific and artistic bodies, university and technical college staffs, employee and employer organizations, and leading engineers and administrators in various public undertakings.

### *Research in education*

Research on teaching of technical subjects has resulted in many improvements to the curricula. Visual education is well established in every college and each year many lecturers and teachers take classes in the uses and techniques of still and motion pictures in class demonstrations. The training of teachers has in fact been given a high priority in administrative practice. Lectures in education,

psychology, English expression and teaching methods are given to new teachers in their first year, and a full time summer school of one month's duration is held at the end of the year.

Realizing the importance of libraries in systematic educational practice the Department has developed a network of libraries throughout the State. Both reading room and lending facilities are provided, and students may consult the most recent issues of all the technical and professional journals as well as the more basic texts. This service also extends to students in outlying areas who may borrow volumes by post from the central library. At present 92,000 volumes are held in the Department's libraries and 2,000 different periodicals are taken regularly.

*The technical colleges*

The Sydney Technical College is the major college within the technical education organization. Most of the courses offered by the Department are taught at Sydney. The schools of instruction are:

| | |
|---|---|
| Agriculture and Horticulture | General studies |
| *Applied chemistry | Graphic arts |
| Applied physics | Hairdressing |
| *Applied psychology | Home science |
| *Architecture | Management |
| Art | *Mathematics |
| Building | Mechanical and automotive engineering |
| *Chemical engineering | *Metallurgy |
| Commerce | *Physics and Optometry |
| Electrical and radio engineering | Plumbing and allied trades |
| *Engineering—civil | Sheep and wool |
| *Engineering—electrical | Tailors' cutting |
| *Engineering—mechanical | Tanning |
| *Engineering—mining | Textiles |
| Food trades | Women's handicrafts |
| Footwear | *Wool technology |

Post diploma courses are conducted from time to time at Sydney Technical College and special lectures in advanced scientific subjects are frequently given for the benefit of those who have passed through the senior courses of the Department of Technical Education and the Australian universities.

*Metropolitan and country technical colleges*

Country students as well as those residing in the outer Sydney suburbs have greatly benefited from the Department's policy of decentralization. One of the

* In these schools the New South Wales University of Technology conducts degree courses, and also a number of diploma courses on behalf of the Department.

chief factors contributing to this policy was the introduction in 1944 of day training for apprentices. Additional instruction for these students meant new and bigger workshops and lecture rooms. In order to avoid overcrowding at the central college in Sydney, the principle was adopted of enrolling students at the technical college nearest their homes. In the Sydney suburbs seven large and expanding colleges are now situated at Granville, Kogarah, North Sydney, Petersham, Belmore, Meadowbank and St. Mary's.

Outside the Sydney metropolitan area the largest centres of heavy industry are situated in the Hunter River valley with its centre as Newcastle, the Wollongong and Port Kembla district south of Sydney and at Broken Hill in the far west near the South Australian border. The Newcastle college is the best equipped single institution of its kind in the southern hemisphere. Facilities are planned primarily to provide training for those engaged in the steel manufacturing and other heavy industries concentrated in the district. Again decentralization has been effected and the Principal at Newcastle is responsible for the supervision and co-ordination of six other colleges and centres of instruction situated within a twenty-mile radius of the main college.

A college of the New South Wales University of Technology has been opened at Newcastle and uses the facilities of the Department to conduct degree and diploma courses in engineering and science.

This year, through co-operation with the University of New England the college at Newcastle will offer arts degree courses for local residents. Lectures will be given by the staff of the Humanities School and students will qualify for degrees of the University of New England. The Wollongong Technical College also serves a wide area in the South Coast engaged in steel manufacture, smelting and mining industries. Full diploma courses are provided in chemistry, metallurgy, mechanical engineering and electrical engineering as well as a wide range of trade courses and courses in commercial subjects, women's handicrafts, art and many special subjects. The college supervises two smaller centres in the district.

Broken Hill, situated well within the semi-arid region of the State, is Australia's silver, lead and zinc mining centre. Technical courses are geared very much to the peculiar needs of the district, and since 1940 new courses have been introduced in five trades and two certificate subjects. For those engaged in the mining industry at the higher level a special metalliferous mining diploma course is conducted. Diploma courses are also offered in civil, electrical and mechanical engineering, metallurgy, and science.

Excluding the major colleges already discussed, instruction is given in 137 country centres throughout the State. Many of these centres have developed considerably in recent years, as a result of the Department's policy of decentralizing instruction. This decentralization has two effects: first, by increasing the variety of courses offered at the smaller colleges it helps to arrest the drift to the cities of young people seeking technical training; secondly, by delegating more responsibility to the head of the local college it facilitates the extension of courses appropriate to the needs of the local district.

In the smaller towns where enrolments do not justify a permanent college building, premises are leased or rented, and itinerant teachers give instruction in subjects such as women's handicrafts, sheep and wool, or shorthand and typewriting.

A more serious problem for these smaller towns in the Outback is the provision of training for engineering trades apprentices and for farmers who are required to carry out repairs to farm machinery and other plant. The Department has attempted to solve this problem with the mobile instruction units, which are virtually 'technical colleges on wheels'. These units, numbering four in all, travel between centres on circuits in the north-west, west, north-east, and southern districts of the State.

Each unit consists of three railway carriages fitted with workshop machinery and equipment to provide a range of instruction covering complete courses in automotive mechanics, fitting and machining, welding, farm mechanics, workshop practice, forge work, motor maintenance, diesel operation and mechanical drawing.

In common with the itinerant teachers in women's handicrafts and sheep and wool, the mobile workshops serve a valuable function as pioneers of technical education. In many cases the local interest stimulated by the visits of these teachers has resulted in a demand for more permanent training facilities and has paved the way for the establishment of permanent technical colleges offering increasingly varied courses of instruction.

For those whose isolation prevents their attending for oral tuition of any kind the Department has developed a system of technical education by correspondence. Instruction covers trade, certificate, and special courses. In most courses the lessons are a counterpart of the oral course syllabus, and students take the same examinations and gain identical certificates on completion.

EXPENDITURE ON TECHNICAL EDUCATION, 1942 TO 1953

| | £A | | £A |
|---|---|---|---|
| 1942–43 ... | 435,916 | 1948–49 ... | 1,605,261 |
| 1943–44 ... | 579,647 | 1949–50 ... | 1,944,002 |
| 1944–45 ... | 594,730 | 1950–51 ... | 2,256,268 |
| 1945–46 ... | 711,054 | 1951–52 ... | 3,108,998 |
| 1946–47 ... | 933,042 | 1952–53 ... | 3,208,142 |
| 1947–48 ... | 1,201,923 | | |

This table shows the extent of the continued increase in technical education expenditure during the years, and it is significant in spite of the loss in currency values during these years. In general, spending was effected chiefly in new buildings and equipment and salaries.

# GENERAL NOTES

## SOME LONDON EXHIBITIONS

Of all the art schools in the country, none perhaps preserves quite so many associations with the past as the Royal Academy's, whose painting, sculpture, and architectural schools are clustered on the garden site of Burlington House, towards Burlington Gardens. With the keeper, Mr. Henry Rushbury, as guide, it is interesting to explore the studios and corridor lined with a profusion of antique casts, sculpture and architectural ornament, with here a case of bones, and there a cast of an actual felon, a grisly relic much sought after by student sculptors. In this academic atmosphere a hundred men and women in their early twenties work at their tasks, three terms a year: painting in the Life Room (its raised tiers of curved benches, half encircling the model's throne, peopled with the shades of Etty, and many more) undertaking the monthly composition of a subject set by the keeper and, when the day's work is done, talking in the canteen—as they have been doing this past week—about their prize-winning and other works exhibited in the Royal Academy's galleries overhead.

Only a day or so may now remain to see this short-lived exhibition, and to mark several distinctly promising young artists. The sculptures in the Central Hall include two conspicuous prize-winning works in Judy Manini's finely designed *Mother and Child*, and a nude figure, with its suggestion of Manzù's influence, by Marie Gill—a larger gallery being devoted to architectural plans and elevations by Professo Richardson's students. Many more rooms are given over to paintings and drawings of the figure, with landscapes and compositions of set subjects, whose agreeable variety of styles is only sometimes counteracted by a certain uniformity of scale which here and there might be deemed over-large for the picture's content. It is interesting to observe that Eric Atkinson, a student-painter broadly of Sickert's school who has already attracted favourable notice in outside exhibitions, is by no means the most prominent in this company—Gerald Rose, Valerie Johnson, and Anthony Lee (who has looked with advantage to Cézanne) being equally thoughtful artists in Mr. Rushbury's care.

There can be no doubt that the Royal Institute of Oil Painters, now holding its sixty-seventh exhibition at 195 Piccadilly, would do well to recruit some serious young painters from the principal London art schools, for it clearly needs a fresh stimulus, as well as the critical attention which only a marked change in its annual offerings could possibly secure. Almost throughout the exhibition it is true that one encounters a professional competence, though this is often only the clichés of practised artists who have long since ceased to see familiar things afresh, and have no desire or incentive to experiment. The few exceptions accordingly take the eye at once here. Mr. Clifford Hall is a respected painter who might easily have been content to continue with his earlier, more spontaneous manner; but, regarding that vein as exhausted, he has concentrated on a firmer construction of his figures, allied with a crisp patterning, well seen in his woman sewing in *The Workroom*. His *Clown in the Ring*, another painting with a strong linear emphasis, stands out, indeed, as one of the few works of any serious consequence in the main gallery; and, in the further room, Mr. Michael Lewis's *Morning Catch* of gleaming fish, in the foreground of a subdued panel of a harbour shed and trawlers, also sets a standard to which the R.O.I. might reasonably attain, if it were invigorated with fresh talent.

At the Beaux Arts Gallery, by contrast, one becomes instantly aware of the tension of two disparate artists who never for a moment relax. Gaudier-Brzeska, who died after a tragically brief career in 1915, is well remembered, of course, in the art world, but his drawings of nude male and female models gathered here are unfamiliar nevertheless. These are mostly drawn with a nervous, tentative pen-line that indicates,

however sparely, the fullness of the form, the artist's distortions introducing decorative and sometimes caricaturist elements into the designs. The finest, perhaps, is a pencil study of a kneeling man, drawn with a marvellously supple line and a perfect understanding of the form, which would not be discountenanced in any Old Master company. With these are shown some of Gaudier-Brzeska's sculptures that include several near-cubist ornaments and, in quite different style, a superbly modelled fragment called *Fallen Workman*, which one might almost believe was one of Géricault's studies of shipwreck survivors for his *Raft of the Medusa*.

In the downstairs gallery here, a youngish, self-taught newcomer, Mr. Denis Wirth-Miller, shows a number of studies of a dog in action which are portentous and often enigmatic in the mode of Francis Bacon, but nevertheless reveal an acute observation of movement and assured handling which make him a painter very much worth watching. His second exhibition will be the test of his true powers.

The magnificent collection of the Abbé Brevil's copies of Palæolithic cave paintings and engravings, at the Arts Council's headquarters at 4 St. James's Square, requires either many pages of this *Journal*, or this brief intimation that it is there to seize the eye and the imagination. The selection covers virtually the whole of the Abbé's career as the leading authority on the subject, from his first copies at La Mouthe, Les Combarelles and Font de Gaume, made in the early years of this century, to his last drawings made only a few years ago, of *The White Lady* and other South African rock paintings. One may be grateful indeed not only for his unflagging zest and scholarship but also for his artistic ability, a number of his chalk drawings of various animals painted on rock faces 20,000 years ago exhibiting a delicacy of tint and texture that one associates with John Skeaping's work.

NEVILE WALLIS

### A TEXTILE COMPETITION

The trade periodical *Wool Review* is initiating this year, in co-operation with the International Wool Secretariat, a 'National Wool Textile Design Competition', in which prizes totalling over £200 will be awarded.

The competition, which is to be held annually, will be divided into two sections for woollen and for worsted fabrics respectively and will this year be limited to textiles for women's wear.

Full particulars of the competition may be obtained from the Editor, *Wool Review*, 222 Strand, London, W.C.2.

## *OBITUARY*

### MR. E. MCKNIGHT KAUFFER

We record with regret the death of Mr. Edward McKnight Kauffer, Hon. R.D.I. Mr. Ashley Havinden, O.B.E., R.D.I., a Fellow of the Society who was a close friend of Mr. Kauffer, writes:

> The death in America of Edward McKnight Kauffer is indeed a great blow to his many friends in England, who not only knew him as a great artist but also as a great man. His charming sympathetic attitude endeared him to all who came in contact with him. Although his work, particularly in the field of posters, was extremely dynamic and aggressive, as all posters should be, he was himself the least aggressive of men.
>
> Ted Kauffer had a most attractive personality. He was tall and thin, and always extremely well-dressed, and although American he had only the slightest trace of American accent. His voice was soft, modulated and attractive to listen to. With his charming manner and persuasive way of describing his innermost thoughts, he helped not only to win many doubting clients to his revolutionary ideas but also drew a large circle of friends and admirers towards him. With his thin, sensitive face, hawklike nose, and huge mop of red-brown hair carefully

brushed, Kauffer's slightly stooping figure commanded respect wherever he went.

What was so stimulating about Kauffer was his great tenacity of purpose and a single-minded conviction that the highest standards of æsthetic expression should be harnessed to the solution of graphic advertising problems. He regarded such work as being just as difficult and just as much worth doing as fine art. He himself had an enormous culture, not only in the art forms of all periods but in literature as well. Kauffer, steeped in the best traditions of fine art, was determined to attack the field of the poster, in particular, as an art form, in the belief that if a poster was not worth looking at it would fail to attract people's attention. If a poster was worth looking at, people would remember it and the quality of the design would enhance the reputation of the company responsible for commissioning it. There is no question that the high regard in which the public hold the London Underground System is due in great part to the series of distinguished posters which Kauffer designed for that company under the ægis of the late Frank Pick.

Kauffer was among the first in the early 'twenties to respond to the impact of modern art, particularly the work of the cubist painters Picasso and Braque. The influence of cubism can be seen in his posters and was the basis of his dynamic geometrical style. The emphatic angular forms of Kauffer's posters shocked the public into attention. His artistry, and in particular his colour sense, held that attention and, in a few short years just after the First World War, laid the foundations of his great reputation as a designer, not only among the leading business men of the time, but particularly among critics and art students.

Kauffer was the first foreign designer to be appointed an Honorary Royal Designer for Industry and was, in fact, one of the original recipients of the Distinction when it was introduced in 1936.

In addition to his posters and advertising designs, Kauffer illustrated a number of books at the behest of Sir Francis Meynell for the Nonesuch Press; notably Burton's *Anatomy of Melancholy*; Herman Melville's *Benito Cereno*; Arnold Bennett's *Elsie and Child*; '*Robinson Crusoe*, and *Don Quixote*.

The stimulus of his work was responsible as much as any other single influence for the growing interest in design for advertising among students. Before his time most people working in advertising design were disappointed 'fine' artists. Kauffer, through his posters, helped to establish the career of designing for advertising as a worth-while vocation. His work and his personality lent lustre to advertising art in this country during the 'twenties and 'thirties. There is no question that Kauffer's brilliance established him as the greatest poster designer of this century, and those who have been influenced by his work, and their number is legion, will mourn his loss and treasure his memory.

## *NOTES ON BOOKS*

THE BRIDGES OF BRITAIN. *By Eric de Maré. Batsford*, 1954. 42*s*

The history of bridges is the history of mankind; for at all times men, even the most primitive, have had to cross rivers in search of food and shelter and, later, for commerce and war. One either crossed the river where the water was shallow or built a bridge; it was of a simple or complex nature, according to the technique of the age. As is well known, towns were founded where one could easily wade across the river; hence the suffix *ford* (as in Oxford) in many of our place-names. Also, for the same reason the suffix *bridge* (as in Tonbridge).

No Roman bridges have been preserved in Britain but the Romans, great road-builders, assuredly constructed bridges here; we imagine that they were rather like the viaduct at Segovia or the Pont du Gard near Nimes.

But before the coming of the Romans, 'clapper' bridges were constructed at vital points in this island. A clapper bridge consists 'simply of large single slabs of stone laid between piers of piled rocks'. Several have been preserved; the most famous is Post Bridge which spans the river Dart in Dartmoor. It is illustrated in *The Bridges of Britain* with a photograph, taken by the author, which reveals the professional photographer. The huge slabs of stone remind one of Stonehenge and of the earliest civilizations.

After the Romans, bridges, like the first castles, were built of wood; needless to say none of them has survived and their history, like the history of other things in Anglo-Saxon times, is obscure. 'Some say that a timber bridge existed at London all through the Dark Ages, and it is conceivable that a rough Celtic bridge of timber was standing there even before the Romans arrived, for Dio Cassius, an historian living in the third century A.D., refers to such a bridge in or near London standing in A.D. 43'.

There is much information to be gathered about bridges from medieval times onwards, and not a few medieval and Renaissance bridges have been preserved throughout the country. Mr. de Maré covers the ground well, tells us how they were built and who built them, and discusses their changing styles. We can see that the subject, now that he has introduced it to us, is endless. Old London bridge, the sole bridge at London until the middle of the eighteenth century, with its houses and shops either side and narrow space in the middle for traffic—it was completed in 1209—could do with a volume all to itself.

The great age of bridge building, when bigger and better bridges were built, came with the Industrial Revolution. The author illustrates the portraits of four great engineers of the age of 'stupendous progress': Thomas Telford, who built many impressive masonry bridges; John Rennie, who built the three famous London Bridges; Robert Stephenson, who built the Britannia Bridge across the Menai Strait, completed 1850; and Isambard Kingdom Brunel, who built scores of bridges including the Saltmarsh Bridge across the River Tamar.

A bridge is much more difficult to build than a house and its failure can have terrible consequences as in the case of the wrought-iron Tay Bridge which carried a railway across the Firth of Tay near Dundee—the bridge broke in a gale just before a train, carrying eighty passengers, was due to pass over it. The films could hardly do better. For this reason there is something exciting, even noble, about the building of a bridge; it grips young and old alike and explains why the ancients consecrated their bridges with human sacrifices. Mr. de Maré has not ignored this aspect of his subject, and because he writes unusually well, he has been able to provide an enthralling as well as an instructive book.

R. W. SYMONDS

WHO'S WHO IN ART. *Seventh Edition. The Art Trade Press, Ltd.*, 1954. 50*s*

Users of directories and reference books will welcome this enlarged list of leading personalities in the art world. Its 4,000 names include 1,000 more than the last volume, published in 1952, and it is hoped that succeeding issues will be even larger.

Unfortunately, however, there are still some important omissions, including a number of Royal Academicians and Royal Designers for Industry, attention to which was drawn in a review of the sixth edition in this *Journal* in October, 1952. In a work of reference of this kind the first names to be included should surely be those of members of the leading art societies and principals of important schools of art, many of whom do not find a place in this edition. One, at least, could occupy the space given to an artist who died six years ago, and whose erroneous inclusion was pointed out in the last review.

Let it not be thought that these objections imply fundamental criticism of a work

which provides such an amount of valuable information. They are made simply with an intention to assist in improving future editions and to make them even more useful than those already published.

## *SHORT NOTES ON OTHER BOOKS*

CONTEMPORARY EMBROIDERY DESIGN. *By Joan Nicholson. Batsford*, 1954. 16*s*

The aim of this book is to suggest ways in which embroidery can be designed to fit contemporary taste. In addition to suggestions for motifs and patterns, the author gives practical details about the stitching used in them and deals with many types of materials and purposes, each appropriate for to-day.

SCULPTURE IN WOOD. *By P. Edward Norman. Studio*, 1954. 15*s*

This, the 53rd volume in the 'How to do it' series contains a brief description of the tools used in wood carving, followed by an illustrated account of the carving of a small fish, while the rest of the book is taken up with photographs of carving in wood, from primitive statuettes to Barbara Hepworth abstracts, with technical notes thereon.

THE QUEEN'S HOUSE. *By Compton Mackenzie. Hutchinson*, 1953. 12*s* 6*d*

This collection of photographs of Buckingham Palace and its inhabitants is accompanied by a short history of the building. Apart from 48 pages of half-tone illustrations, there is a coloured frontispiece of the White Drawing Room.

HANDBOOK OF ENGLISH COSTUME IN THE SIXTEENTH CENTURY. *By C. W. and P. Cunnington. Faber*, 1954. 30*s*

Every type of clothing used in the sixteenth century is here discussed in classified lists under periods. Technical details of each article of clothing, the dates of each fashion and an abundance of contemporary quotations are given. There are drawings to illustrate the text.

PENCIL DRAWING FOR THE ARCHITECT. *By Charles I. Hobbis. Alec Tiranti*, 1954. 7*s* 6*d*

A collection of 64 architectural drawings reproduced in half tone is prefaced by a short account of the art for the student. Each of the drawings (of which 28 are by the author) is accompanied by technical notes and criticisms.

## *FROM THE JOURNAL OF 1854*

VOLUME II. *27th October*, 1854

### REPLANNING LONDON

*From a letter by* Joseph Kay *dated 7th October*, 1854, *describing the improvements to Paris then being carried out under the direction of the Emperor.*

Far be it from me to say that we should be right to emulate in London the extravagance of the Imperial Government, but one thing we should do well to imitate, and that is, to have some gradual scheme of improvement, by which present and future governments might be guided and, as far as possible, to have some certainty of at least avoiding gross mistakes, by confiding future plans to the direction of some committee formed partly of architects and scientific men. But at present what is the result of our want of system in this respect? The Houses of Parliament are being built in one part of London on one of the lowest of the sites we had at our command,

and exhibiting its magnificent front to one of the most wretched suburbs of the metropolis. The Record-office is rising in another part of London, and in one of the back streets in the city, facing nothing, and lost in buildings of the most miserable description, where scarcely any one knows how to find it out.

The British Museum has been built in another part of the town, with no other fine building near it—itself only the front of a building—and enclosed entirely with houses of a third and fourth-class order. The new museum in Piccadilly forms only part of a line of shops. The 'finest site in Europe' is wasted and covered with a building one would gladly see on the site of the British Museum.

All this is very unfortunate; and what is the cause? We have not thought the decoration of the metropolis or the erection of national edifices to be worthy of any scientific or artistic direction. People would not be satisfied to trust the actual *construction* of a palace to a leading orator of the House of Commons, but who selects the design or who regulates the design we have not hitherto deemed worthy of a thought.

If there had been any one continued plan or any unity of artistic direction or design in all the vast expenditure which has gone on during the last fifty years in London, we should now even have had the most magnificent and delightful city in the world.

## *Some Activities of Other Societies and Organizations*

### MEETINGS

MON. 1 NOV. Engineers, Society of, at the Geological Society, Burlington House, W.1. 5.30 p.m. Prof. A. C. Aitken : *The Art of Mental Calculation ; with Demonstrations.*

Geographical Society, Royal, S.W.7. 8.30 pm. Captain J-Y. Cousteau : *Archæology under the Sea.*

TUES. 2 NOV. Electrical Engineers, Institution of, Savoy Place, W.C.2. 5.30 p.m. *Boreholes—Instrumentation for Measurements at Depth* (Discussion).

Manchester Geographical Society, 16 St. Mary's Parsonage, Manchester, 3. 6.30 p.m. J. Armitage : *Andalusia Rediscovered.*

Mechanical Engineers, Institution of, 1 Birdcage Walk, S.W.1. 6.45 p.m. *The Place of the Gas Turbine cum Two-stroke Engine/Gas Generator Unit in the Future Pattern of the Oil Engine Industry.*

WED. 3 NOV. Archæological Institute of Great Britain and Ireland, Royal, at the Society of Antiquaries of London, Burlington House, W.1. 5 p.m. Charles Newman : *Art Nouveau.*

THURS. 4 NOV. Chemical Society, at Imperial College of Science, South Kensington, S.W.7. 7.30 p.m. Prof. J. A. Christiansen : *On Open and Closed Sequences in Reaction Kinetics.*

Electrical Engineers, Institution of, Savoy Place, W.C.2. 5.30 p.m. M. J. Kelly, Sir Gordon Radley, G. W. Gilman and R. J. Halsey : *A Transatlantic Telephone Cable.*

Manchester Geographical Society, 16 St. Mary's Parsonage, Manchester, 3. 6.30 p.m. F. A. Mitchell-Hedges : *Exploration in the Central American Islands.*

FRI. 5 NOV. Mechanical Engineers, Institution of, 1 Birdcage Walk, S.W.1. 5.30 p.m. Prof. D. L. Mordell : *An Experimental Coal-burning Gas Turbine.*

SAT. 6 NOV. Horniman Museum, London Road, Forest Hill, S.E.23. 3.30 p.m. H. St. George Gray : *The Lake Villages of Somerset (Glastonbury and Meare).*

MON. 8 NOV. Electrical Engineers, Institution of, Savoy Place, W.C.2. 5.30 p.m. *Methods of Teaching Technical Writing* (Discussion).

Geographical Society, Royal, S.W.7. 5 p.m. A. A. L. Caesar : *Economic Planning of Eastern Europe.*

TUES. 9 NOV. Civil Engineers, Institution of, Great George Street, S.W.1. 5.30 p.m. J. A. Skinner and F. R. Martin : *Some Considerations of Airfield Pavement Design.*

Manchester Geographical Society, 16 St. Mary's Parsonage, Manchester, 3. 6.30 p.m. D. C. Brown : *Journey from Arctic Lapland.*

Mechanical Engineers, Institution of, 1 Birdcage Walk, S.W.1. 4 p.m. (1) G. Grime and C. G. Giles : *The Skid-resisting Properties of Tyres and Road Surfaces.* (2) H. J. H. Starks and R. D. Lister : *Investigations into the Braking Performance of Road Vehicles.*

WED. 10 NOV. British Kinematograph Society, at G.B. Theatre, Wardour Street, W.1. 7.15 p.m. D. Stewart : *Editing 16 mm. Film.*

Chemical Engineers, Institution of, at the Grosvenor Hotel, Chester. 7 p.m. J. A. Williams and D. J. Little : *The Pulsed Column in Liquid—Liquid Extraction.*

At the University, Edmund Street, Birmingham 6.30 p.m. Prof. F. H. Garner, S. R. M. Ellis and J. A. Lacey : *Evaporator Entrainment.*

Electrical Engineers, Institution of, Savoy Place, W.C.2. 5.30 p.m. (1) L. Essen : *Standard Frequency Transmissions.* (2) J. McA. Steele : *The Standard Frequency Monitor at the National Physical Laboratory.* (3) H. B. Law : *Standard Frequency Transmission Equipment at Rugby Radio Station.*

Engineering Inspection, Institution of, at the Royal Society of Arts, W.C.2. 6.45 p.m. R. W. Stuart : *Current Trends in Diesel Engine Development.*

Newcomen Society, at the Institution of Civil Engineers, Great George Street, S.W.1. 5.30 p.m. H. Chatley : *Far Eastern Engineering.*

Petroleum, Institute of, at 26 Portland Place, W.1. 5.30 p.m. B. W. Bradford, D. Harvey and D. E. Chalkley : *The Chromatographic Analysis of Hydrocarbon Mixtures.*

THURS. 11 NOV. Circle of Glass Collectors, at the Royal Society of Arts, W.C.2. 4.30 p.m. E. Hald : *Swedish Glass.*

Electrical Engineers, Institution of, Savoy Place, W.C.2. 5.30 p.m. J. G. Bruce : *The Overhaul and Maintenance of D.C. Traction Motors.*

SAT. 13 NOV. Horniman Museum, London Road, Forest Hill, S.E.23. 3.30 p.m. Prof. F. E. Zeuner : *The Camel and the Elephant.*

### OTHER ACTIVITIES

WED. 10 NOV. UNTIL 1 DEC. Sanitary Institute, Royal, in the Museum of Hygiene, 90 Buckingham Palace Road, S.W.1. Exhibition : *Single Stack Drainage for Multi-storey Flats.*

NOW UNTIL 31 DEC. Imperial Institute, South Kensington, S.W.7. Exhibition : *Sir Alfred Bossom's Collection of the Arts and Crafts of the British Columbia Indians.*

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